PLAN OF OPERATION FORM

INSTRUCTIONS

PLEASE READ

To submit a complete and accurate plan:

1. Read the bold text and explanatory information in each section.

2. Give a complete answer in each blank or put "None."

3. Put additional information in Section V or attach it to this form.

This form is designed to cover a variety of sites and operations. Many items may not be applicable to your situation. If you are proposing a potentially complex or controversial operation, consult with the DEQ before submitting a plan.

DEFINITIONS

Terms used multiple times in this form, but not defined in the text, include:

"Access road" means an existing or proposed non-public road used in connection with opencut operations.

"Facility-level area" means access roads and areas where parking, equipment and material storage, soil and overburden stockpiling, fuel storage, mine material processing and stockpiling, other product production and storage, and water management structures and systems are situated.

"Mine-level area" means areas where excavating, grading, and excess overburden and fines disposal occur.

"Main permit area" means facility-level areas and mine-level areas, except access roads.

PLAN OF OPERATION

Operator: _____ Site: _____ Final rec. date (see III[A]): _____

Postmining land uses (see III[B]): _____

The bold text, performance standards, answers, attachments, and related maps constitute the binding parts of this plan.

SECTION I – PREMINE INFORMATION

I-A DIRECTIONS TO SITE

Describe how to get from the nearest public road to the main permit area (include mileposts, landmarks, and distances; tell how to obtain keys or combinations for locks).

Answer:

I-B TOPOGRAPHY

Describe the terrain in and within 1,000 feet of the main permit area (features include hills, valleys, ridges, draws, spurs, cliffs, and benches).

Answer:

I-C SURFACE DISTURBANCES

1. Describe the surface disturbances along access roads (disturbances include mine areas, waste piles, and garbage pits).

Answer:

2. Describe the surface disturbances in and within 1,000 feet of the main permit area.

Answer:

I-D LAND USES

1. Describe the land uses along access roads (uses include water source pond, wetland, fish pond, riparian area, grassland, shrubland, woodland, special use pasture, hayland, cropland, wildlife habitat, livestock protection site, recreation site, and residential, commercial, and industrial sites).

Answer:

2. Describe the land uses in and within 1,000 feet of the main permit area.

Answer:

I-E STRUCTURES AND FACILITIES

1. Describe the non-operation-related structures and facilities within 500 feet of access roads (these include residential, commercial, and industrial structures and facilities).

Answer:

2. Describe the non-operation-related structures and facilities in and within 1,000 feet of the main permit area.

Answer:

I-F SURFACE WATER FEATURES

1. Describe the surface water features within 500 feet of access roads (features include ditches, drainageways, springs, streams, wetlands, ponds, and impoundments).

Answer:

2. Describe the surface water features in and within 1,000 feet of the main permit area.

Answer:

I-G WATER WELLS

1. Give the locations, total depths, static water levels, and uses of wells in and within 1,000 feet of the main permit area (give depths and levels from ground surface; if some or all of this information is on the water well report [see 2], reference it here and attach a copy).

Answer:

2. Give the information sources used (attach a water well report from the Montana Bureau of Mines and Geology (MBMG), Ground Water Information Center at 406-496-4336 or http://mbmggwic.mtech.edu; landowners, field observations, and water well logs are also good sources).

Answer:

I-H WATER TABLE LEVELS

1. Give the following information (the seasonal high water table is the level to which water typically rises at its highest stage annually; the seasonal low water table is the level to which water typically falls at its lowest stage annually).

(a) The estimated maximum depth of mining: **_____ feet from ground surface**

(b) The estimated seasonal high water table level in the main permit area: **_____ feet from ground surface**

(c) The estimated seasonal low water table level in the main permit area: **_____ feet from ground surface**

2. Give the information sources used (the MBMG, landowners, field observations, and water well logs are good sources).

Answer:

I-I SOIL AND OVERBURDEN THICKNESSES

1. Give the following soil and overburden thickness information (examine test holes, observation points such as road cuts and highwalls, and soil survey information to determine the break between soil and overburden; soil is darker colored, has moderate to strong soil structure, and/or contains the majority of plant roots; overburden is lighter-colored, has weak structure or is structureless, and/or contains few to no roots; when overburden is the mine material, as in a borrow site or when needed as binder, an appropriate quantity must first be dedicated to satisfying the soil plus overburden replacement thickness requirements given in III[F]).

(a) Access road area soil*	**Range: _____ to _____ inches**	**Average thickness: _____ inches**
(b) Other facility-level area soil	**Range: _____ to _____ inches**	**Average thickness: _____ inches**
(c) Mine-level area soil	**Range: _____ to _____ inches**	**Average thickness: _____ inches**
(d) Mine-level area overburden	**Range: _____ to _____ inches**	**Average thickness: _____ inches**

*For new road locations and new areas to be used for improvements to existing roads. Improvements include substantial widening, cutting, and filling. An existing road is a worn two-track trail on up to a paved road.

2. Give the information sources used (for each category above, obtain field information from a representative number of test holes or observation points; list this information below or reference it here and attach a copy; the Test Hole Log form is available for use; the DEQ may require additional information depending on the size and nature of the areas; obtain soil survey information from the Natural Resources Conservation Service).

Answer:

I-J VEGETATION

Describe the vegetation in the main permit area (list the dominant grasses, forbs, shrubs, and trees; list the noxious weeds observed; landowners, field observations, and soil surveys are good information sources).

Answer:

I-K WILDLIFE

1. Describe the fish and wildlife habitats along access roads (see the list of habitats in the Map Guideline; landowners, field observations, and state and federal agencies [DFWP, DNRC, USFS, BLM, USFWS] are good information sources).

Answer:

2. Describe the fish and wildlife habitats in and within 1,000 feet of the main permit area.

Answer:

I-L ADDITIONAL INFORMATION

Describe other characteristics or circumstances unique to the proposed permit and surrounding area.

Answer:

SECTION II – OPERATIONS

II-A MARKERS

1. Operator has:

(a) Clearly marked new road locations and existing roads to be improved (place temporary, bright-colored markers at every curve, no more than about 300 feet apart, and so they are visible from one to the next).

(b) Clearly marked the main permit area boundary segments that require marking (boundary segments defined by definite topographic changes, natural barriers, or man-made structures, or located in active hayland or cropland, need not be marked; place durable, bright-colored markers at every corner, no more than about 300 feet apart, and so they are visible from one to the next; stout steel or wood posts are recommended; a boundary marker must remain in place until the beginning of final reclamation of the adjacent area).

2. Describe the materials used to clearly mark new road locations and existing roads to be improved.

Answer:

3. Describe the materials used to clearly mark the main permit area boundary segments that require marking.

Answer:

4. Describe the main permit area boundary segments defined by definite topographic changes, natural barriers, or man-made structures.

Answer:

5. Describe the main permit area boundary segments located in active hayland or cropland.

Answer:

II-B ACCESS ROADS

1. Operator will:

(a) Properly establish and use access roads.

(b) Reclaim or downsize constructed or improved roads to premine condition, except as provided in 3, by:

(1) Retrieving and properly using, stockpiling, or disposing of materials used for road construction or improvement (materials include culverts, gravel, and pavement).

(2) Backfilling and grading in a manner that leaves stable surfaces blended into the surrounding topography and drainageways.

(3) Ripping, resoiling, and revegetating.

2. Describe the location of and design for each new access road to be constructed and existing road to be improved.

Answer:

3. Include on the Landowner Consent form a request describing the location, final width, and intended use of constructed or improved roads proposed to remain open at the conclusion of opencut operations (such roads may remain open for a reasonable use and must be left at a width and in a condition suitable for that use; a 12-foot width is recommended for most roads; if no constructed or improved road is proposed to remain open, put "none" here; otherwise, reference the Landowner Consent form here, put the required information on that form, and list "road" as a postmining land use under III[B]).

Answer:

II-C MINING, FACILITIES, AND HAULING

1. Describe the general mining progression, including where the first excavation will occur, the direction mining will progress, and the heavy equipment likely to be used.

Answer:

2. Describe distinct mining phases, including an estimated timeline (for example, "We will mine with loaders to the ordinary water table level during the first year, then mine in the water with an excavator during the second year," or "We will mine the area closest to the subdivision during the first 2 weeks of June, then move to the north site for the rest of the operation").

Answer:

3. Describe the facilities to be installed or constructed at the beginning of the operation and where they will be located (facilities

include grizzly, screen, crusher, asphalt plant, wash plant and settling ponds, concrete plant, pug mill, fuel tanks, scale, and buildings; provide a diagram of a proposed wash plant and pond system; if the Wash Plant Settling Pond Guideline will be followed, reference it here and attach a copy).

Answer:

4. Describe the anticipated relocation, addition, or removal of facilities as the operation progresses, including the facilities involved, the operational phase when the action will take place, and where facilities will be relocated or added.

Answer:

5. Describe the types of haul trucks to be used (additional hauling information may be required depending on the location of the site and the type of operation).

Answer:

II-D HOURS OF OPERATION

Describe the anticipated hours of operation if other than 7 a.m. to 7 p.m., Monday through Friday (give time periods and days of the week; limited hours of operation may be required to reduce adverse impacts on residential or other areas; unless otherwise approved, hours of operation are applicable to mining, processing, loading, hauling, and outside maintenance activities).

Answer:

II-E WATER PROTECTION AND MANAGEMENT

1. Operator will:

(a) Protect on- and off-site surface and ground water from adverse changes in quality and quantity that could be caused by opencut operations.

(b) Prevent, minimize, or mitigate adverse impacts to on- and off-site surface and ground water structures and systems that could be caused by opencut operations.

(c) Properly establish, use, and reclaim hydrologic structures and systems used for opencut operations.

(d) Keep waste, concrete with protruding metal, asphalt, and stationary equipment above the seasonal high water level of surface and ground water.

(e) Manage fuel storage as follows:

(1) Install or construct secondary containment structures for stationary, single-wall, fuel storage tanks in accordance with the current codes adopted by the State Fire Marshall.

(2) Routinely inspect and maintain tanks to prevent leaks and spills.

(3) Retrieve, handle, and dispose of spilled fuel and contaminated materials in a lawful manner.

(4) Report a fuel spill that reaches state waters or is greater than 25 gallons to the Montana Spill Hotline (406-841-3911; "state waters" means surface water, ditch water with return, and ground water).

2. Describe the source, quantity, storage, use, and discharge of water to be used for opencut operations (include water used for dust

control, washing, pug milling, and concrete batching; consult the Department of Natural Resources and Conservation (DNRC), Water Rights Bureau [406-444-6610] to see if a water right is needed).

Answer:

3. Describe the plan for handling solvents, washwater, and wastes associated with asphalt plant, concrete plant, and truck use.

Answer:

4. Describe the fuel storage tanks to be used in the main permit area (stationary, mobile, single-wall, double-wall, capacity).

Answer:

5. Describe the secondary containment structures to be installed or constructed for stationary, single-wall, fuel storage tanks (if the Fuel Storage Guideline will be followed, reference it here and attach a copy).

Answer:

6. Describe the plan for managing surface water, sediment, and erosion during opencut operations (discuss the use of diversion channels, interception ditches, on-site collection ditches, sediment ponds and traps, and silt fence; provide designs for substantial structures; indicate which structures will remain as permanent features at the conclusion of opencut operations, if any).

Answer:

7. Describe the plan for managing ground water during opencut operations (discuss the use of subsurface drainage, toe drains, interception ditches, French drains, dewatering wells and sumps, and groundwater barriers; provide designs for substantial structures; indicate which structures will remain as permanent features at the conclusion of opencut operations, if any).

Answer:

8. Describe the measures to be used to protect the water rights of other parties, or to replace a water source, system, or structure that has a beneficial use but will be adversely affected by opencut operations (if the proposed operation will divert or capture surface or ground water, or if water will be put to a beneficial use such as dust control, gravel washing, stock water, fish and wildlife, irrigation, or recreation, consult the DNRC Water Rights Bureau [406-444-6610] about the need to protect or obtain a water right and provide a summary of that consultation).

Answer:

II-F SOIL AND OVERBURDEN HANDLING

1. Operator will strip soil before other opencut operation disturbances occur.

2. Operator will handle soil and overburden separately and minimize the mixing of these materials (if possible, avoid handling soil and overburden when they are wet or frozen).

3. Operator will strip soil from new road locations, new areas to be used for improvements to existing roads, and other facility-level areas to the thicknesses identified in I-I (soil need not be stripped from soil stockpile areas and existing roads; soil stripping may create low spots that collect water, necessitating the establishment of drainage or construction of raised roadbeds and work areas).

4. Operator will:

(a) Strip soil from mine-level areas to the thickness identified in I-I.

(b) Strip overburden from mine-level areas as needed to satisfy the replacement thickness requirements given in III(F).

5. Operator will maintain a minimum 10-foot buffer stripped of soil and needed overburden along the edges of highwalls.

6. Operator will haul soil and overburden to areas prepared for resoiling, or stockpile and protect them from erosion, contamination, compaction, and unnecessary disturbance.

7. Operator will, at the first seasonal opportunity after soil or overburden stockpile completion, shape and seed to an approved mix a stockpile that will remain for 2 or more years.

8. Operator will keep soil on site and accessible until the approved postmining land uses are established to the DEQ's satisfaction (this ensures that soil remains available for reclamation regardless of the intended postmining land uses; do not use soil off site, give it away, or sell it).

II-G MINE MATERIAL HANDLING

1. Operator will:

(a) Keep mine material stockpiles out of drainage bottoms and off of slopes steeper than 3:1.

(b) At the conclusion of opencut operations:

(1) Remove from the permit area or bury excavated or processed mine material, except as provided in 2 (mine material buried en masse could be recovered if needed in the future).

(2) Consolidate mine material to remain stockpiled into piles of similar type and grade.

(3) Leave an appropriate amount of soil stockpiled, shaped, and seeded within 100 feet of each remaining mine material stockpile (cubic yards of soil to remain equals the square footage of unreclaimed area under and around a mine material stockpile times the thickness in feet of the soil that was stripped from this area divided by 27 cubic feet/cubic yard).

2. Include on the Landowner Consent form a request describing the approximate quantity and expected use for each type and grade of mine material proposed to remain stockpiled at the conclusion of opencut operations (only approved quantities may remain stockpiled; if no mine material is proposed to remain stockpiled, put "none" here; otherwise, reference the Landowner Consent form here, put the required information on that form, and list "mine material stockpile area" as a postmining land use under III[B]).

Answer:

II-H OTHER MATERIAL HANDLING

1. Operator will:

(a) Use only clean fill from any source and on-site-generated asphalt as mined-area backfill ("clean fill" means dirt, soil, overburden, sand, fines, gravel, oversize, rock, and concrete with no protruding metal; unless otherwise approved, dispose of asphalt at least 25 feet above the seasonal high water table level; imported dirt, soil, overburden, sand, and fines may be used to augment surface reclamation).
(b) Bury clean fill unsuitable for plant growth, and on-site-generated asphalt, under at least 3 feet of material suitable for sustaining the postmining vegetation.

(c) Place only on-site-generated overburden and fines in excess-material disposal sites (such sites are located outside of mined areas but in the permit area; they provide an opportunity for one-time handling of excess overburden and fines; disposal methods include filling low areas and making mounds; prepare and reclaim these sites per standard procedures).

(d) Dispose of burn pile residue, metal, plastic, tires, and other wastes off site and in a lawful manner.

(e) Remove from the permit area stockpiled asphalt, concrete, and clean fill that cannot or will not be buried during final reclamation.

2. Describe the location, material type, estimated quantity, and design for planned mined-area backfill sites.

Answer:

3. Describe the location, material type, estimated quantity, and design for planned excess-material disposal sites.

Answer:

4. Indicate if the proposed operation will include on-site stockpiling and recycling of imported asphalt and concrete and, if so, attach the Application For Concrete And Asphalt Recycling form.

Answer:

II-I ADDITIONAL IMPACTS

1. Describe the methods and materials to be used to mitigate impacts on the structures and facilities listed in I(E) (noise and visual mitigation methods include buffer zones, berms, vegetative screens, equipment enclosures, equipment location, and restricted hours of operation [see II(D)]; dust control mitigation methods include spray, curtains, enclosures, speed limits, graveled and paved surfaces, limited disturbance area, and timely revegetation).

Answer:

2. Describe other man-made features to be affected by opencut operations and the methods and materials to be used to repair or replace these features (features include fences, ditches, utilities, and non-access roads).

Answer:

3. Address opencut operation impacts not addressed in other parts of this plan.

Answer:

II-J ADDITIONAL COMMITMENTS

1. Operator will inform key personnel and subcontractors involved in opencut operations of the requirements of this plan.

2. Operator will take proper precautions to prevent wildfires.

3. Operator will provide appropriate protection for identified cultural resources that could be affected by opencut operations, and promptly notify the State Historic Preservation Office (406-444-7715) **and the DEQ** (406-444-4970) **should additional resources be found.**

4. Operator will submit an Annual Progress Report to the DEQ by March 1.

SECTION III – RECLAMATION PLAN

Some reclamation items are discussed in Section II.

III-A RECLAMATION TIMEFRAMES

1. Operator will complete reclamation work on an area no longer needed for opencut operations, or that the operator no longer has the right to use for opencut operations, within 1 year after the cessation of such operations or termination of such right.

2. Give a reasonable estimate of the month and year by which final reclamation of the permit area will be completed (consider the estimated mine material demand, expected rate of production, and accessible mine material reserves; complete final reclamation by the date given).

Answer:

III-B POSTMINING LAND USES

Describe the types, locations, and sizes of postmining land use areas in the main permit area (disturbed areas must be reclaimed to productive uses such as water source pond, wetland, fish pond, riparian area, grassland, shrubland, woodland, special use pasture, hayland, cropland, wildlife habitat, livestock protection site, recreation site, and residential, commercial, and industrial building sites; design this plan to achieve the designated uses).

Answer:

III-C SITE CLEANUP AND GRADING

1. Unless otherwise approved, operator will remove machinery, equipment, and structures from the permit area.

2. Operator will retrieve and properly use, stockpile, or dispose of foreign materials found in the main permit area (foreign materials include fines, gravel, and pavement; clean surfaces down to native material).

3. Operator will leave reclaimed surfaces:

(a) In a stable condition, graded to drain off site or to low areas, and blended into the surrounding topography and drainageways (irregular edges and contours are preferred for livestock and wildlife habitat; minimize slope lengths; reclaim drainageways to natural conditions).

(b) With 5:1 or flatter slopes for hayland and cropland, 4:1 or flatter slopes for sandy surfaces, and 3:1 or flatter slopes for other areas (steeper slopes may be approved for certain situations).

(c) At least 3 feet above the seasonal high water table level for dryland reclamation, and at least 3 feet below the seasonal low water table level for pond reclamation (seasonal ponds may be acceptable).

III-D SPECIAL RECLAMATION FEATURES

1. Describe the locations and designs for ponds (if the Pond Guideline will be followed, specify the types of ponds to be created, reference the guideline here, and attach a copy; consult the DNRC Water Rights Bureau [406-444-6610] to see if a water right is needed; if a pond site is dry during mining, notify the DEQ before it is filled so proper construction can be verified).

Answer:

2. Describe the locations and designs for other special reclamation features (features include drainageways and building sites).

Answer:

III-E RIPPING

Operator will alleviate compaction by ripping compacted surfaces and replaced overburden to a depth of at least 12 inches before resoiling (this important step relieves compaction, thus allowing air and water movement, root penetration, and subsurface drainage necessary for good plant growth; space ripper shanks about equal to ripping depth; rip on the contour where possible and when materials are dry enough to shatter; protect ripped areas from recompaction; ripping is not required for relatively non-compactible materials such as sands, rocky materials, and bedrock).

III-F SOIL AND OVERBURDEN REPLACEMENT

1. Operator will replace soil on applicable access road areas, other facility-level areas, and mine-level areas to the thicknesses identified in I-I (at the first seasonal opportunity, seed or plant a resoiled surface to the approved vegetative species, or seed it to a cover crop).

2. Operator will replace a minimum of _____ inches of overburden on mine-level areas (if overburden is available, the soil plus overburden replacement thickness must be up to 18 inches on dryland postmining land use areas, and up to 36 inches on irrigated and cropland postmining land use areas; excess overburden may be used for reclamation, as product, for backfill, or disposed of in an excess material disposal site; private operators must post bond to cover the designated soil and overburden replacement thicknesses).

III-G REVEGETATION

1. Operator will:

(a) Establish vegetation capable of sustaining the designated postmining land uses.

(b) Use certified seed and comply with local weed district requirements.

(c) Unless otherwise approved, seed during the late fall to early spring seeding season.

(d) Ensure that areas seeded or planted to perennial species can be and are appropriately protected and managed from the time of seeding or planting through two growing seasons or until site stabilization and revegetation are achieved, whichever is longer.

2. Describe the types and rates of fertilizer or other soil amendment applications (this is typically listed as "Optional"; a starter fertilizer containing 10 pounds of nitrogen [N] and 30 pounds of phosphorous [P_2O_5] per acre may improve revegetation success; incorporate fertilizer into the seedbed during seedbed preparation or seeding).

Answer:

3. Describe the method of tilling to be used to relieve soil compaction and prepare the seedbed (methods include disking, chisel plowing, and harrowing; prepare seedbeds on the contour where possible; when the postmining land use is hayland or cropland, leave the

surface free of rocks greater than 5 inches).

Answer:

4. The primary method of seeding will be: ___ drilling ___ broadcasting (check one).

5. Give the species and rates of seeding or planting (give seeding rates as pounds of pure live seed per acre; if the Seed Mix Guideline mix will be used, reference it here and attach a copy; drill seed on the contour where possible; broadcast seed at a rate 100 percent higher than the drill seeding rate and drag or press the surface to cover the seed).

Answer:

6. Describe the erosion control products and mulches to be used (these are typically used on areas more likely to experience substantial erosion, such as drainageways and slopes greater than 3:1).

Answer:

7. Describe the measures to be used to manage and protect sites until reclamation vegetation is established (measures include livestock management and fencing).

Answer:

SECTION IV – RECLAMATION BOND

BOND CALCULATION

Attach a proposed bond calculation (the bond amount must be based on an estimate of what it would cost the DEQ to reclaim, in accordance with this plan, the anticipated maximum disturbance during the life of the operation; use of the Reclamation Bond Spreadsheet is recommended; areas to remain undisturbed until some point in the future, or for the life of the operation, may be permitted but need not be bonded; before non-bonded permit area is disturbed, post adequate bond to cover the area; governmental operators are exempt from bonding requirements).

SECTION V – ADDITIONAL INFORMATION

I have read and understand this plan. I certify that the statements, descriptions, and information given apply to the proposed permit area, applicable adjacent areas, and proposed opencut operations. I affirm that this plan will be followed unless officially amended through the DEQ.

Operator: _____ Site: _____

Signature: _____ Title: _____ Date: _____